

# PATENT ABSTRACTS OF JAPAN

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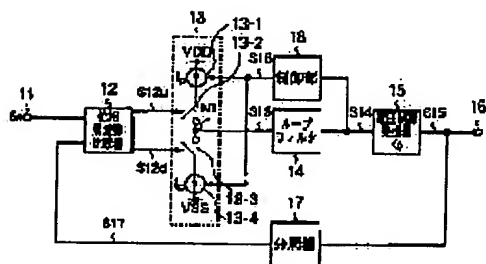
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## (54) PHASE LOCKED LOOP CIRCUIT

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a phase locked loop circuit that is stable in operation over a wide frequency band.

SOLUTION: A phase frequency comparator 12 compares a phase and a frequency of an input signal  $S_i$  with those of a comparison signal  $S_{17}$  and provides an output of a phase lead signal  $S_{12u}$  and a phase lag signal  $S_{12d}$ . The phase lead signal  $S_{12u}$  or the phase lag signal  $S_{12d}$  is given to a charge pump 13, which provides an output of an output signal  $S_{13}$ . A loop filter 14 smoothes the output signal  $S_{13}$  and provides an output of a control voltage  $S_{14}$ . The control voltage  $S_{14}$  is given to a voltage controlled oscillator 15, which outputs an output signal  $S_{15}$ . A frequency divider 17 frequency-divides the output signal  $S_{15}$ , which gives a comparison signal  $S_{17}$  to the phase frequency comparator 12. Moreover, a control section 18 converts the control voltage  $S_{14}$  into a control signal  $S_{18}$ . When the frequency of the input signal  $S_i$  is low, the control voltage  $S_{14}$  is low, a current  $I_p$  of current sources 13-1, 13-4 is small, and when the frequency is high, the



control signal  $S_{14}$  is high and the current  $I_p$  is high.

## LEGAL STATUS

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